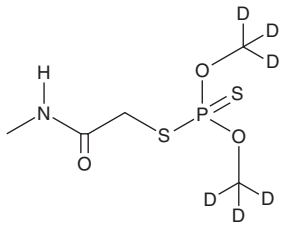
PRODUCT INFORMATION

Dimethoate-d_6

Item No. 39260

CAS Registry No.:	1219794-81-6
Formal Name:	phosphorodithioic acid, O,O-di(methyl-d_3) S-[2-(methylamino)-2-oxoethyl] ester
MF:	$C_5H_6D_6NO_3PS_2$
FW:	235.3
Chemical Purity:	≥98% (Dimethoate)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_6); ≤1% d_0
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Dimethoate-d_6 is intended for use as an internal standard for the quantification of dimethoate (Item No. 24246) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Dimethoate-d_6 is supplied as a solid. A stock solution may be made by dissolving the dimethoate-d_6 in the solvent of choice, which should be purged with an inert gas. Dimethoate-d_6 is soluble in chloroform and DMSO.

Description

Dimethoate is an organophosphate pesticide.[1] It is acaricidal against Kanzawa spider mites (LC_{50} = 7 ppm in an aqueous suspension). Dimethoate (50-200 µM) reduces motility and viability and induces abnormal morphology of rat sperm.[2] It also increases production of malondialdehyde (MDA) and reduces superoxide dismutase (SOD), catalase (CAT), and glutathione peroxidase (GPX) activities in rat epididymal sperm. *In vivo*, dimethoate (28 mg/kg per day) decreases sperm count, motility, and viability and increases the percentage of morphologically abnormal sperm in rats.[3] Dimethoate also induces formation of carcinomas in the adrenal, thyroid, and pituitary glands of male and female rats as well as testicular atrophy, chronic renal disease, polyarteritis, and parathyroid hyperplasia in male rats.[4] Formulations containing dimethoate have been used as insecticides and miticides in aquatic food production and agriculture.

References

1. Kuwahara, M. Insensitivity of the acetylcholinesterase from the organophosphate-resistant Kanzawa spider mite, *Tetranychus kanzawa* Kishida (Acarina: Tetranychidae) to organophosphorus and carbamate insecticides. *Appl. Ent. Zool.* **17(4)**, 486-493 (1982).
2. Ben Abdallah, F., Fetoui, H., Zribi, N., *et al.* Antioxidant supplementations *in vitro* improve rat sperm parameters and enhance antioxidant enzyme activities against dimethoate-induced sperm damages. *Andrologia* **44(Suppl 1)**, 272-279 (2012).
3. Abdallah, F.B., Slima, A.B., Dammak, I., *et al.* Comparative effects of dimethoate and deltamethrin on reproductive system in male mice. *Andrologia* **42(3)**, 182-186 (2010).
4. Reuber, M.D. Carcinogenicity of dimethoate. *Environ. Res.* **34(2)**, 193-211 (1984).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM